



AMENDMENT UNDER 37 C.F.R. § 1.111
USSN: 09/712,920

Q61808

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An initial synchronization method in a DS-CDMA inter-base station asynchronous cellular scheme of transmitting a spreading code sequence comprising a long code unique to each cell and a short code corresponding to each communication channel, an identification code (common identification code) common to each cell in a predetermined period (slot), and a long code group identification short code corresponding to the long code in each cell upon multiplexing the codes, comprising:

a first stage comprising

detecting correlation power values between the common identification code and a received signal by using a correlator, and detecting a long code timing from a corresponding base station on the basis of a maximum value of the correlation power values, and

performing a threshold determination by comparing the maximum correlation power value with ~~an~~ a first arbitrary threshold, and performing processing again from the first stage if the maximum correlation power value does not exceed the threshold;

a second stage comprising

detecting a correlation value between the received signal and each long code group identification short code, and obtaining a sum of the correlation values corresponding to the number of long code group identification short codes in each slot according to a transmission pattern of long code group identification short codes in each predetermined long code group,

setting a group having a maximum correlation sum as a group to which a long code of the received signal belongs,

detecting a slot in which a head of the pattern is obtained as a start slot of a frame, and

comparing ~~an~~ a second arbitrarily set threshold with the maximum correlation sum and performing processing again from the first stage if the maximum correlation sum does not exceed the threshold; and

a third stage comprising

sequentially generating replica codes of long codes and short codes from long code candidates included in the long code group identified in the second stage,

performing correlation detection for the obtained synchronization timing,

performing long code correlation detection to check whether the correlation detection value exceeds ~~an~~ a third arbitrary threshold,

returning to the first stage if none of correlation detection values of all long codes exceeds the threshold, and

determining a long code exceeding the threshold as a long code of a target cell, performing synchronization detection by using a frame sync signal, completing initial synchronization if synchronization is detected, and returning to the first state if synchronization is not detected;

wherein at least one of said first, second and third arbitrary thresholds is set after at least one of said ~~maximum correlation~~ power values, said maximum correlation sum and a maximum correlation detection value, are excluded.

2. (previously presented): A method according to claim 1, wherein the threshold determination in the first stage comprises obtaining an average of correlation power values, from which given correlation values ranging from the maximum correlation power value to a correlation power value of an arbitrary ordinal number correlation value and correlation values before and after the given correlation power values are excluded, and setting the average as an arbitrary threshold.

3. (previously presented): A method according to claim 1, wherein the threshold determination in the second stage comprises obtaining an average of the respective correlation sums, from which the detected maximum correlation sum is excluded, and setting the average as an arbitrary threshold.

4. (previously presented): A method according to claim 1, wherein identification of a long code in the third stage comprises

sequentially generating replica codes of long codes and short codes from long code candidates included in the identified long code group,

performing correlation detection for an obtained synchronization timing,

detecting correlation values of long codes to check whether the correlation detection value exceeds an arbitrary threshold,

returning to the first stage if none of the correlation detection values of the long codes exceeds the threshold,

determining a long code as a long code in a target cell if the long code exceeds the threshold,

performing synchronization detection by using a frame sync signal,

determining completion of initial synchronization if synchronization is detected, and

returning to the first stage if synchronization is not detected.

5. (previously presented): A method according to claim 1, wherein threshold determination in the third stage comprises obtaining an average of the respective correlation detection values, from which a detected maximum correlation detection value is excluded, and setting the average as an arbitrary threshold.

6. (currently amended): A DS-CDMA cellular system using an initial synchronization method in a DS-CDMA inter-base station asynchronous cellular scheme of transmitting a spreading code sequence constituted by a long code unique to each cell and a short code corresponding to each communication channel, an identification code (common identification code) common to each cell in a predetermined period (slot), and a long code group identification short code corresponding to the long code in each cell upon multiplexing the codes, comprising:

a first section comprising

means for detecting correlation power values between the common identification code and a received signal by using a correlator, and detecting a long code timing from a corresponding base station on the basis of a maximum value of the correlation power values, and

means for performing threshold determination by comparing the maximum correlation power value with ~~an~~ a first arbitrary threshold, and performing processing again from processing in said first section if the maximum correlation power value does not exceed the threshold;

a second section comprising

means for detecting a correlation value between the received signal and each long code group identification short code, and obtaining a sum of the correlation values corresponding to the number of long code group identification short codes in each slot

according to a transmission pattern of long code group identification short codes in each predetermined long code group,

means for setting a group having a maximum correlation sum as a group to which a long code of the received signal belongs,

means for detecting a slot in which a head of the pattern is obtained as a start slot of a frame, and

means for comparing ~~an~~ a second arbitrarily set threshold with the maximum correlation sum and performing processing again from processing in said first section if the maximum correlation sum does not exceed the threshold; and

a third section comprising

means for sequentially generating replica codes of long codes and short codes from long code candidates included in the long code group identified in said second section,

means for performing correlation detection for the obtained synchronization timing,

means for performing long code correlation detection to check whether the correlation detection value exceeds ~~an~~ a third arbitrary threshold,

means for returning to processing in said first section if none of correlation detection values of all long codes exceeds the threshold, and

means for determining a long code exceeding the threshold as a long code of a target cell, performing synchronization detection by using a frame sync signal, completing initial synchronization if synchronization is detected, and returning to processing in the first state if synchronization is not detected;

wherein at least one of said first, second and third arbitrary thresholds is set after at least one of said ~~maximum correlation~~ power values, said maximum correlation sum and a maximum correlation detection value, are excluded.

7. (previously presented): A system according to claim 6, wherein said first section comprises means for obtaining an average of correlation power values, from which given correlation values ranging from the maximum correlation power value to a correlation power value of an arbitrary ordinal number correlation value and correlation values before and after the given correlation power values are excluded, and setting the average as an arbitrary threshold.

8. (previously presented): A system according to claim 6, wherein said second section comprises means for obtaining an average of the respective correlation sums, from which the detected maximum correlation sum is excluded, and setting the average as an arbitrary threshold.

9. (original): A system according to claim 6, wherein said third section comprises means for sequentially generating replica codes of long codes and short codes from long code candidates included in the identified long code group, performing correlation detection for an obtained synchronization timing, detecting correlation values of long codes to check whether the correlation detection processing in said first section if none of the correlation detection values of the long codes exceeds the threshold, determining a long code as a long code in a target cell if the long code exceeds the threshold, performing synchronization detection by using a frame sync signal, determining completion of initial synchronization if synchronization is detected, and returning to processing in said first section if synchronization is not detected.

10. (previously presented): A system according to claim 6, wherein said third section comprises means for obtaining an average of the value exceeds an arbitrary threshold, returning to respective correlation detection values, from which a detected maximum correlation detection value is excluded, and setting the average as an arbitrary threshold.